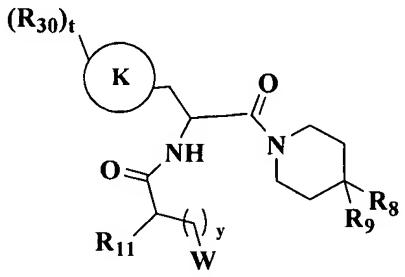
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1. (Currently Amended) A compound according to the formula



or a pharmaceutically-acceptable salt[[,]] or hydrate ~~or prodrug~~ thereof,
in which,

K is aryl or heteroaryl;

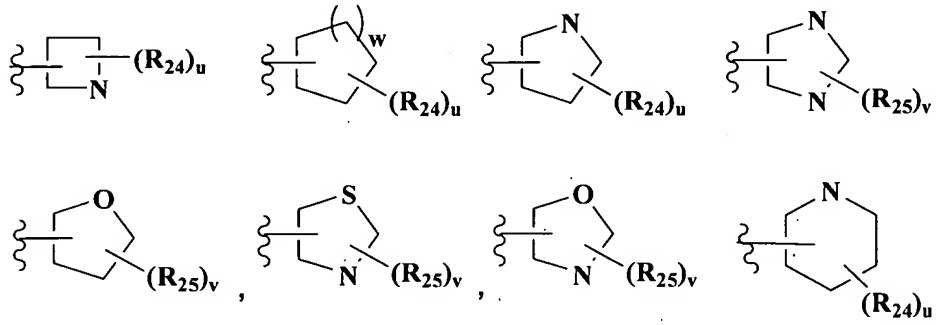
R_8 and R_9 are independently ~~hydrogen, halogen, cyano,~~ alkyl substituted with heteroaryl, ~~substituted alkyl, alkenyl, alkynyl,~~ cycloalkyl, ~~heterocyclo,~~ aryl, ~~heteroaryl, $-OR_{13}$, $-NR_{13}R_{14}$, $-SR_{13}$, $-S(O)_pR_{14}$~~ and, $-C(=O)R_{13}$, where one of R_8 and R_9 is alkyl substituted with heteroaryl and the other is cycloalkyl, or where one of R_8 and R_9 is aryl and the other is $-C(=O)-$alkyl; ~~$-OC(=O)R_{13}$, $-CO_2R_{13}$, $-C(=O)NR_{13}R_{14}$, $-NR_{13}C(=O)R_{14}$, $-OC(=O)NR_{13}R_{14}$, $-NR_{13}CO_2R_{14}$, $-NR_{13}C(=O)NR_{14}R_{15}$ or $-NR_{13}SO_2R_{14}$; or R_8 and R_9 taken together form a monocyclic or bicyclic cycloalkyl or heterocyclo joined in a spiro fashion to the piperidine ring, provided that R_8 and R_9 are not both hydrogen, and provided further that when R_8 is $-OR_{13}$, $-(CH_2)_k$-aryl or $-(CH_2)_k$-heteroaryl, then R_9 is not $-C(=O)NR_{18}R_{19}$, $-CO_2R_{19}$, $-(CH_2)_mNR_{18}SO_2R_{20}$, $-(CH_2)_mNR_{18}C(=O)R_{20}$, $-(CH_2)_mOR_{19}$, $-(CH_2)_mO(C=O)R_{20}$, $-CH(R_{18})R_{19}$, or $-(CH_2)_mNR_{18}(C=O)NR_{19}R_{21}$;~~

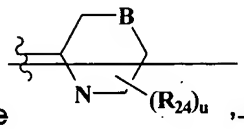
R_{11} and R_{12} are selected from hydrogen, alkyl, halogen, hydroxy, hydroxyalkyl, haloalkyl, amino, aminoalkyl, alkylamino, arylalkyl, cycloalkylalkyl, heteroarylalkyl, aryl, and cycloalkyl, and where *y* is at least 1, then R_{11} and R_{12} may be heterocyclo or heterocycloalkyl;

R_{13} is [[,]] ~~R_{14} and R_{15} are independently hydrogen,~~ alkyl; [[,]] ~~substituted alkyl, cycloalkyl, aryl, heterocyclo, or heteroaryl; or R_{13} and R_{14}, or R_{14} and R_{15} may join together to form a heterocyclo or heteroaryl, except R_{14} is not hydrogen when joined to a sulfonyl group as in $-S(O)_pR_{14}$ or $-NR_{13}SO_2R_{14}$;~~

W is selected from:

1) $-NR_{16}R_{17}$, $-NR_{16}C(=O)R_{22}$, $-NR_{16}CO_2R_{22}$, $-OR_{23}$, amidino, and guanidino;
2) heteroaryl or heterocyclo groups selected from pyrrolyl, furyl, thienyl, imidazolyl, pyrazolyl, isoxazolyl, thiazolyl, isothiazolyl, 3-azaisothiazolyl, pyridyl, pyrazinyl, pyridazinyl, 1,2-dihydropyridazinyl, and pyranyl, wherein said heteroaryl and heterocyclo groups may be substituted or unsubstituted and may have an optionally-substituted carbocyclic, heterocyclic or heteraryl ring fused thereto; or
3) a ring selected from:



~~and where at least one of x and/or y is at least 1, W may be~~  ~~, wherein B is N, O or S;~~

R_{16} and R_{17} are selected from hydrogen, alkyl and substituted alkyl;

R_{18}, R_{19} and R_{21} are independently hydrogen or $C_{1\text{-}6}$alkyl optionally substituted with halogen;

R_{20} is C_{1-6}alkyl, aryl, or heteroaryl;

R_{22} and R_{23} are independently selected from hydrogen, alkyl, substituted alkyl, aryl, heteroaryl, cycloalkyl, and heterocyclo;

R_{24} and R_{25} at each occurrence are attached to any available carbon or nitrogen atom of W and at each occurrence are selected from hydrogen, C_{1-6}alkyl, halogen, substituted C_{1-6}alkyl, amino, alkylamino, cyano, nitro, trifluoromethoxy, $-C(=O)R_{26}$, $-CO_2R_{26}$, $-SO_2R_{26}$, $-OR_{26}$, aryl, heteroaryl, heterocyclo, and cycloalkyl, and/or two R_{25} attached to two adjacent carbon atoms or adjacent carbon and nitrogen or carbon atoms may join to form a fused optionally-substituted heteroaryl, heterocyclo or cycloalkyl ring, and/or two R_{24} or two R_{25} when attached to the same carbon atom may form keto (=O);

R_{26} is hydrogen, alkyl, substituted alkyl, aryl, heterocyclo, cycloalkyl, or heteroaryl, except when joined to a sulphonyl group as in SO_2R_{26}, then R_{26} is not hydrogen;

R_{30} is attached to any available carbon or nitrogen atom of K and is selected from C_{1-4}alkyl, hydroxy, alkoxy, halogen, nitro, cyano, amino, alkylamino, phenyl, and $-C(=O)$phenyl; and

k and *m* are independently 0, 1, 2 or 3;
p is 1, 2, or 3;
t is 0, 1 or 2.
u and *v* are 0, 1, 2, or 3;
w is 0, 1, or 2;
y is 0, 1, 2, 3, or 4; and
z is 0, 1 or 2.

Claim 2. (Cancelled).

Claim 3. (Currently Amended) A compound according to claim 1, or a pharmaceutically-acceptable salt[[,]] <u>or</u> hydrate ~~or prodrug~~ thereof,

in which:

W is $-NR_{16}R_{17}$, $-NHC(=O)R_{22}$, $-NHCO_2$alkyl, OR_{23}, or azetidinyl;

R_{16} and R_{17} are independently selected from hydrogen, C_{1-8}alkyl, and $(CH_2)_q$-J, wherein J is selected from ~~napthyl~~ naphthyl, furanyl, indolyl, imidazolyl, pyrimidinyl, benzothienyl, pyridinyl, pyrrolyl, pyrrolidinyl, thienyl, and C_{3-7}cycloalkyl, wherein the alkyl, alkylene, and/or J groups of R_{16} and/or R_{17} are optionally substituted with up to three R_{32};

R_{22} is selected from C_{1-6}alkyl, trifluoromethyl, alkoxyalkyl, furylalkyl, alkylaminoethyl, phenyl, ~~pyrollylalkyl~~ pyrrolylalkyl, piperidinyl, and piperidinylalkyl, wherein R_{22} in turn is optionally substituted with one to two C_{1-4}alkyl and/or $-CO_2(C_{1-4}$alkyl);

R_{23} is hydrogen or phenyl;

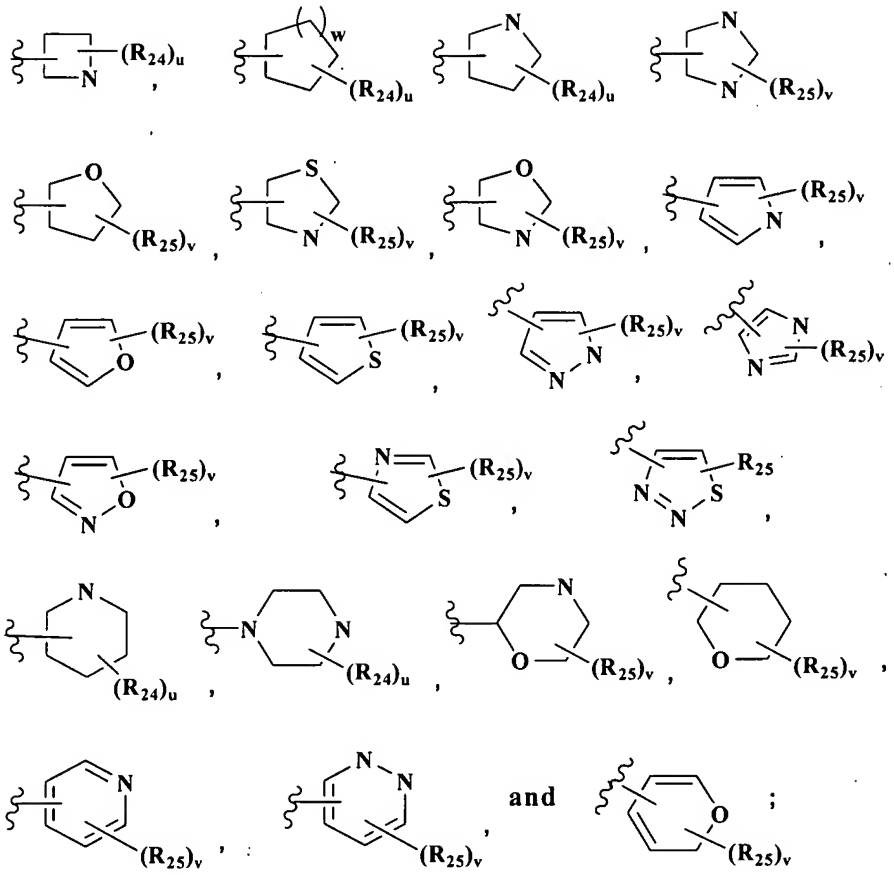
R_{32} is selected from C_{1-6}alkyl, hydroxy, C_{1-4}alkoxy, amino, C_{1-4}alkylamino, aminoC_{1-4}alkyl, trifluoromethyl, halogen, phenyl, benzyl, phenyloxy, benzyloxy, $-C(=O)(CH_2)NH_2$, $-CO_2(C_{1-4}$alkyl), $-SO_2(C_{1-4}$alkyl), tetrazolyl, piperidinyl, pyridinyl, and indolyl, wherein when R_{32} is a ring, said ring in turn is optionally substituted with one to two C_{1-4}alkyl, hydroxy, methoxy, and/or halogen; and

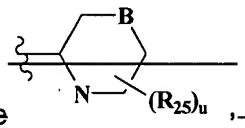
q is 0, 1, 2 or 3.

Claim 4. (Currently Amended) A compound according to claim 1, or a pharmaceutically-acceptable salt[[,]] or hydrate ~~or prodrug~~ thereof,

in which

W is a ring selected from:



~~and where at least one of x and/or y is at least 1, W may be~~  ~~, wherein B is N, O or S;~~

R_{24} is selected from keto (=O), $C_{1\text{-}6}$alkyl, halogen, amino, aminoalkyl, alkylamino, hydroxy, $C_{1\text{-}4}$alkoxy, hydroxy$C_{1\text{-}4}$alkyl, –C(=O)alkyl, –C(=O)aminoalkyl, –C(=O)phenyl, –C(=O)benzyl, –CO_2alkyl, –CO_2phenyl, –CO_2benzyl, –SO_2alkyl, –SO_2aminoalkyl, –SO_2phenyl, –SO_2benzyl, phenyl, benzyl, phenyloxy, benzyloxy, pyrrolyl, pyrazolyl, piperidinyl, pyridinyl, pyrimidinyl, and tetrazolyl, and each R_{24} in turn is optionally substituted with one to two R_{31};

R_{25} at each occurrence is attached to any available carbon or nitrogen atom of W and is selected from $C_{1\text{-}6}$alkyl, halogen, amino, aminoalkyl, alkylamino, hydroxy, $C_{1\text{-}4}$alkoxy, hydroxy$C_{1\text{-}4}$alkyl, –C(=O)alkyl, –C(=O)aminoalkyl, –C(=O)phenyl, –C(=O)benzyl, –CO_2alkyl, –CO_2phenyl, –CO_2benzyl, –SO_2alkyl, –SO_2aminoalkyl, –SO_2phenyl, –SO_2benzyl, phenyl, benzyl, phenyloxy, benzyloxy, pyrrolyl, pyrazolyl, piperidinyl, pyridinyl, pyrimidinyl, and

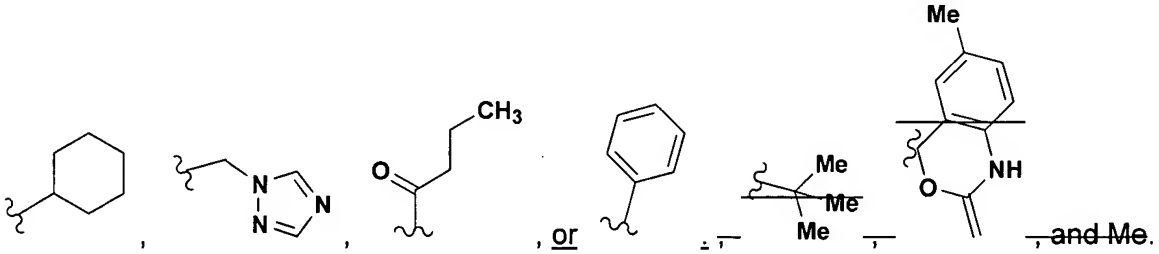
tetrazolyl, and/or two R_{25} when attached to adjacent carbon atoms may be taken together to form a fused benzo or pyrazolyl ring, and/or two R_{25} when attached to the same carbon atom (in the case of a non-aromatic ring) may form keto (=O), and each R_{25} in turn is optionally substituted with up to two R_{31};

R_{31} is selected from halogen, trifluoromethyl, C_{1-4}alkyl, hydroxy, and C_{1-4}alkoxy;

w is selected from 0, 1, or 2; and
u and *v* are selected from 0, 1, and 2.

Claim 5. (Cancelled).

Claim 6. (Currently Amended) A compound according to claim 1, or a pharmaceutically-acceptable salt[[,]] or hydrate ~~or prodrug~~ thereof, in which R_8 and R_9 are independently selected from



~~, and Me~~.

Claim 7. (Currently Amended) A compound according to claim 1 or a pharmaceutically-acceptable salt[[,]] or hydrate ~~or prodrug~~ thereof, in which

R_{11} is (i) at each occasion independently selected from:

a) hydrogen,

b) C_{1-6}alkyl,

c) C_{1-6}alkyl substituted with up to two of hydroxy, alkoxy, amino, alkylamino, imidazolyl, pyrazolyl, phenyl, ~~napthyl~~ naphthyl, pyridinyl, indolyl, pyrimidyl, furyl, thiazolyl, and thienyl, wherein said ringed substituents in turn are optionally substituted with one to

three R_{33} and/or have a benzene ring fused thereto optionally substituted with one to two R_{33};

d) C_{3-7}cycloalkyl optionally substituted with up to two R_{33} and/or having a benzene ring fused thereto, wherein said fused benzene ring is optionally substituted with up to two R_{33};

e) phenyl optionally substituted with up to three R_{33};

f) where *y* is at least one, R_{11} and R_{12} may also be selected from piperidinyl, pyrrolidinyl, piperidinylalkyl, and pyrrolidinylalkyl, in turn optionally substituted with up to three R_{33}; or

ii) alternatively, one of R_{11} and one of R_{12} attached to the same carbon atom may be taken together to form a spirocycloalkyl ring;

R_{33} is selected from C_{1-6}alkyl, hydroxy, C_{1-6}alkoxy, halogen, nitro, phenyl, benzyl, phenyloxy, benzyloxy, -C(=O)phenyl, amino, alkylamino, and aminoalkyl, wherein when R_{33} includes a phenyl group said phenyl group in turn is optionally substituted with one to two of halogen, nitro, cyano, C_{1-4} alkyl, and/or C_{1-4} alkoxy.

Claim 8. (Currently Amended) A compound according to claim 1 or a pharmaceutically-acceptable salt[[,]] or hydrate ~~or prodrug~~ thereof, in which

R_2 is selected from hydrogen, C_{1-6}alkyl, C_{2-6}alkenyl, biphenyl, C_{2-6}alkenylene-K, and $-(CH_2)_g$-K;

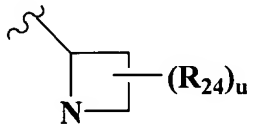
K is selected from phenyl, ~~napthyl~~ naphthyl, thienyl, thiazolyl, pyridinyl, pyrimidinyl, and C_{5-6}cycloalkyl, wherein each group K in turn is optionally substituted with one to three R_{30} or has a benzene ring fused thereto, which also may be substituted with one to three R_{30};

R_{30} is selected from C_{1-4}alkyl, hydroxy, alkoxy, halogen, nitro, cyano, amino, alkylamino, phenyl, and acylphenyl; and

g is 0, 1, 2 or 3.

Claims 9 and 10. (Cancelled).

Claim 11. (Currently Amended) A compound according to claim 1[[0]], or a pharmaceutically-acceptable salt[[,]] or hydrate ~~or prodrug~~ thereof, in which

W is  , $-NR_{16}R_{17}$, $NR_{16}C(=O)R_{22}$, OH, or imidazolyl;

R_{16} and R_{17} are selected from hydrogen and C_{1-4}alkyl;

R_{22} is C_{1-4}alkyl, phenyl or piperidinylC_{1-4}alkyl;

R_{24} is C_{1-4}alkyl; and

u is 0 or 1.

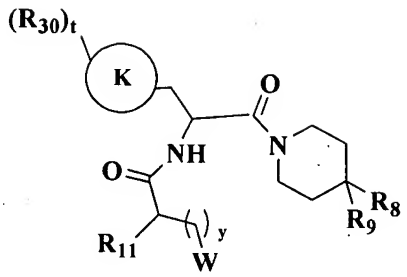
Claim 12. (Currently Amended) A compound according to claim 11, or a pharmaceutically-acceptable salt[[,]] or hydrate ~~or prodrug~~ thereof, in which

R_{11} is hydrogen, C_{1-4}alkyl, or imidazolylC_{1-4}alkyl.~~; and~~

~~R_{12} is hydrogen or C_{1-4}alkyl.~~

Claim 13. (Currently Amended) A compound according to claim 11 or a pharmaceutically-acceptable salt[[,]] or hydrate ~~or prodrug~~ thereof, in which R_{16} and R_{17} are independently selected from hydrogen, C_{1-8}alkyl, and C_{1-8}substituted alkyl, except R_{16} and R_{17} are not alkyl substituted with pyridiyl, imidazolyl, thiazolyl, pyrimidinyl, or piperazinyl, and W is not morpholinyl.

Claim 14. (Currently Amended) A compound according to the formula,



or a pharmaceutically-acceptable salt[[,]] or hydrate ~~or prodrug~~ thereof, in which,

K is aryl or heteroaryl;

R_8 and R_9 are independently ~~hydrogen, halogen, cyano,~~ alkyl substituted with heteroaryl, ~~substituted alkyl, alkenyl, alkynyl,~~ cycloalkyl, ~~heterocyclo,~~ aryl, ~~heteroaryl, $-OR_{13}$, $-NR_{13}R_{14}$, $-SR_{13}$, $-S(O)_pR_{14}$~~ and, $-C(=O)R_{13}$[[,]]; ~~$-OC(=O)R_{13}$, $-CO_2R_{13}$, $-C(=O)NR_{13}R_{14}$, $-NR_{13}C(=O)R_{14}$, $-OC(=O)NR_{13}R_{14}$, $-NR_{13}CO_2R_{14}$, $-NR_{13}C(=O)NR_{14}R_{15}$ or $-NR_{13}SO_2R_{14}$; or R_8 and R_9 taken together form a monocyclic or bicyclic cycloalkyl or heterocyclo joined in a spiro fashion to the piperidine ring,~~

R_{11} is selected from hydrogen, alkyl, halogen, hydroxy, hydroxyalkyl, haloalkyl, amino, aminoalkyl, alkylamino, arylalkyl, cycloalkylalkyl, heteroarylalkyl, aryl, and cycloalkyl, and where *y* is at least 1, then R_{11} and R_{12} may be heterocyclo or heterocycloalkyl;

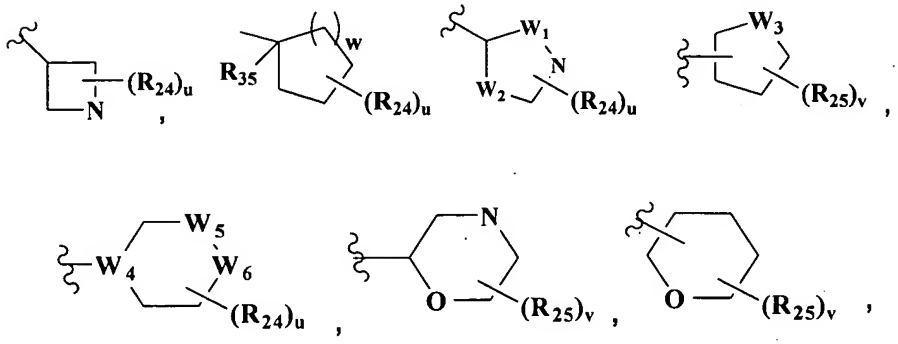
R_{13}, R_{14} and R_{15} are independently hydrogen, alkyl, substituted alkyl, cycloalkyl, aryl, heterocyclo, or heteroaryl; or R_{13} and R_{14}, or R_{14} and R_{15} may join together to form a heterocyclo or heteroaryl, except R_{14} is not hydrogen when joined to a sulfonyl group as in $-S(O)_pR_{14}$ or $-NR_{13}SO_2R_{14}$;

W is selected from:

1) $-NR_{16}R_{17}$; $-NR_{16}C(=O)R_{22}$, $-NR_{16}CO_2R_{22}$, or $-OR_{23}$; or

2) heteroaryl or heterocyclo groups selected from pyrrolyl, furyl, thienyl, imidazolyl, pyrazolyl, isoxazolyl, thiazolyl, isothiazolyl, 3-azaisothiazolyl, pyridyl, pyrazinyl, pyridazinyl, 1,2-dihydropyridazinyl, and pyranyl, wherein said heteroaryl and heterocyclo groups may be optionally substituted with one to three R_{36}, and may have an optionally-substituted carbocyclic, heterocyclic or heteraryl ring fused thereto; or

3) a carbocyclic, heterocyclic, or heteroaryl ring selected from:



in which W_1 and W_2 are NH, CH_2, O or S, W_3 is O or S, W_4 is N or CH, and W_5 and W_6 are NH or CH_2, wherein when W_1, W_2, W_5 and W_6 are NH or CH_2, said groups are optionally substituted with R_{24};

R_{16} and R_{17} are C_{1-8}alkyl or $(CH_2)_q$-J, wherein J is selected from aryl, heteroaryl, heterocyclo, and cycloalkyl, wherein the alkyl, alkylene, and/or J groups of R_{16} and/or R_{17} are optionally substituted with up to three R_{32};

R_{22} is selected from C_{1-6}alkyl, trifluoromethyl, alkoxyalkyl, furylalkyl, alkylaminoethyl, phenyl, ~~pyrollylalkyl~~ pyrrolylalkyl, piperidinyl, and piperidinylalkyl, wherein R_{22} in turn is optionally substituted with one to two C_{1-4}alkyl and/or $-CO_2(C_{1-4}$alkyl);

R_{23} is hydrogen or aryl;

R_{24} and R_{25} at each occurrence are attached to any available carbon or nitrogen atom of W and at each occurrence are selected from hydrogen, C_{1-6}alkyl, halogen, substituted C_{1-6}alkyl, amino, alkylamino, $-C(=O)R_{26}$, $-CO_2R_{26}$, $-SO_2R_{26}$, $-OR_{26}$, aryl, heteroaryl, heterocyclo, and cycloalkyl, and/or two R_{25} attached to two adjacent carbon atoms or adjacent carbon and nitrogen atoms may be taken together to form a fused optionally-substituted heteroaryl, heterocyclo or cycloalkyl ring, and/or two R_{24} or two R_{25} when attached to the same carbon atom may form keto (=O);

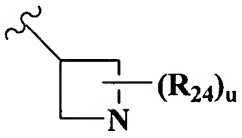
R_{26} is hydrogen, alkyl, phenyl, benzyl, or aminoalkyl, except when joined to a sulphonyl group as in SO_2R_{26}, then R_{26} is not hydrogen;[[;]]

R_{32} is selected from C_{1-6}alkyl, hydroxy, C_{1-6}alkoxy, halogen, nitro, phenyl, benzyl, phenyloxy, benzyloxy, -C(=O)phenyl, amino, alkylamino, and aminoalkyl, wherein when R_{32} includes a phenyl group said phenyl group in turn is optionally substituted with one to two of halogen, nitro, cyano, C_{1-4} alkyl, and/or C_{1-4} alkoxy;

R_{35} and R_{36} at each occurrence is selected from C_{1-6}alkyl, halogen, substituted C_{1-6}alkyl, hydroxy, alkoxy, cyano, trifluoromethyl, trifluoromethoxy, nitro, acyl, carboxyalkyl, sulfonyl, aryl, heteroaryl, heterocyclo, and cycloalkyl;

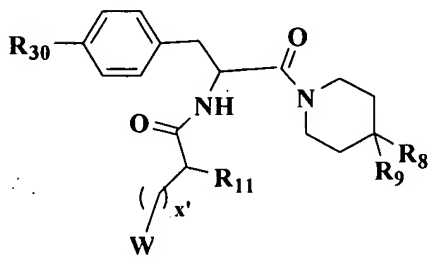
p is 1, 2 and 3;
u and *v* are 0, 1, or 2; and
w is 0, 1, or 2.

Claim 15. (Currently Amended) A compound according to claim 14, or a pharmaceutically-acceptable salt[[,]] <u>or</u> hydrate ~~or prodrug~~ thereof, in which

W is  , $-NR_{16}R_{17}$, or $NR_{16}C(=O)R_{22}$;

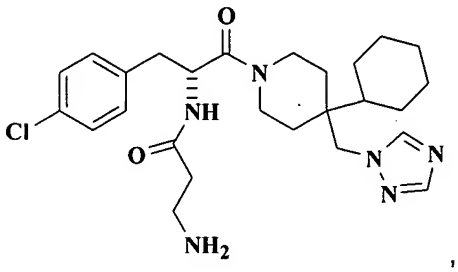
R_{24} is C_{1-4}alkyl;
u is 0 or 1.

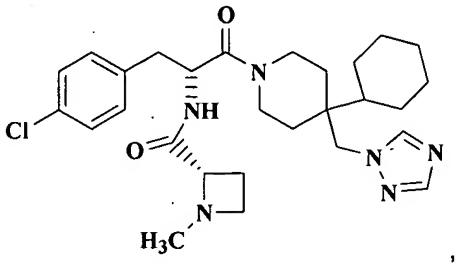
Claim 16. (Currently Amended) A compound according to claim 14, or a pharmaceutically-acceptable salt[[,]] <u>or</u> hydrate ~~or prodrug~~ thereof, having the formula,

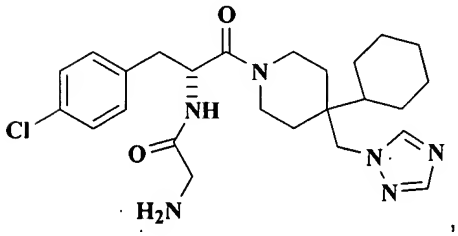


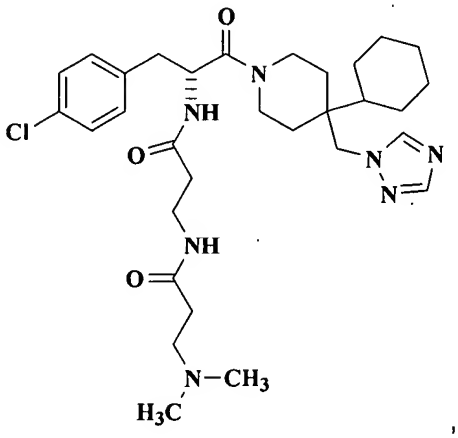
in which y is 0, 1 or 2 and R_{30} is halogen or methoxy.

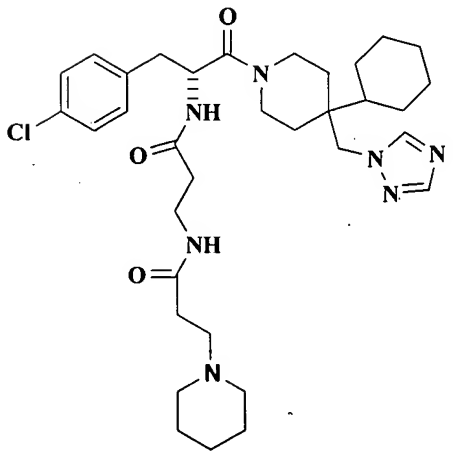
Claim 17. (Currently Amended) A compound ~~according to claim 1,~~ having the formula,

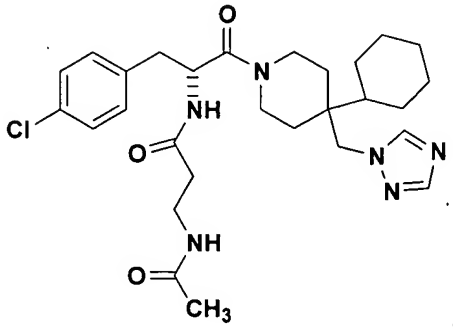


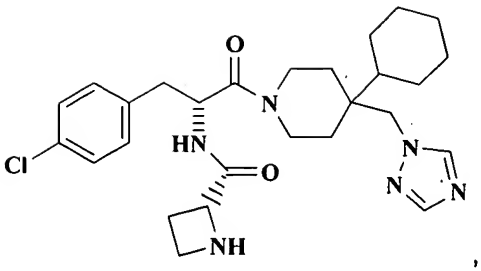


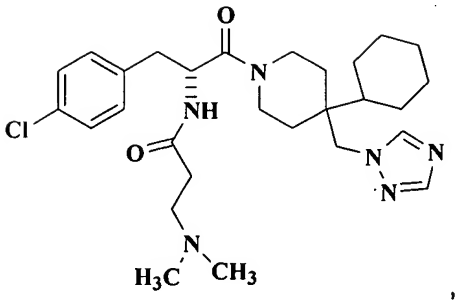


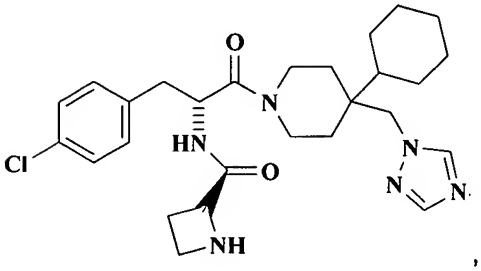


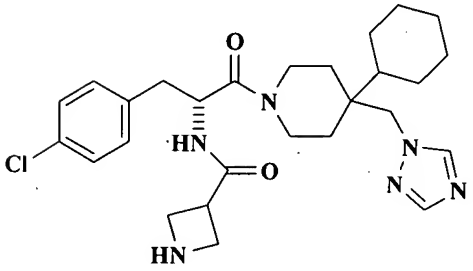


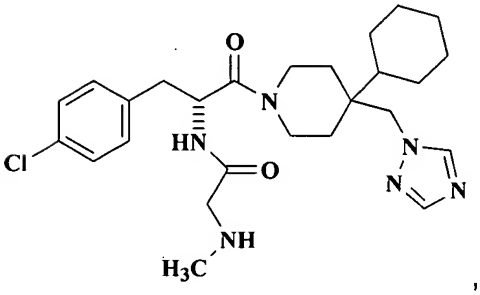


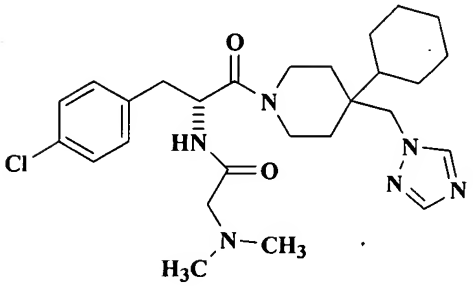


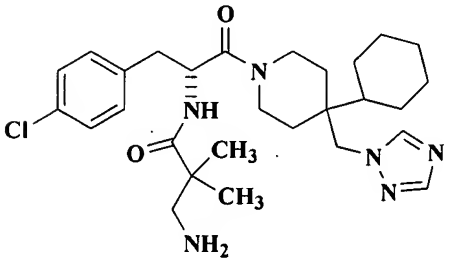


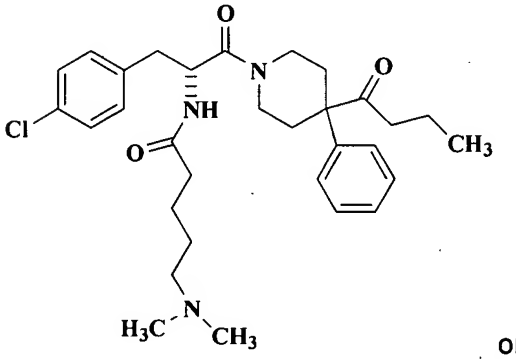












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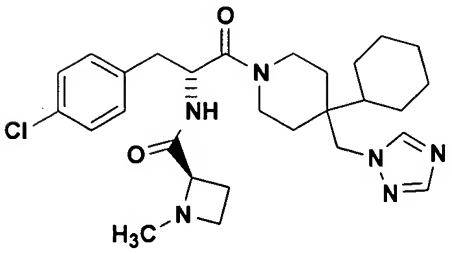
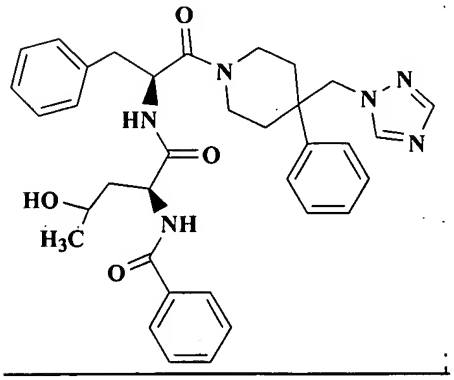




or a pharmaceutically-acceptable salt, hydrate, or prodrug thereof.

Claim 18. (Previously Amended) A pharmaceutical composition comprising a therapeutically effective amount of at least one compound according to claim 1 or a pharmaceutically-acceptable salt, hydrate or prodrug thereof; and a pharmaceutically-acceptable carrier or diluent.

Claim 19. (Original) A pharmaceutical composition comprising (i) at least one compound according to claim 1 or a pharmaceutically-acceptable salt, hydrate or prodrug thereof, (ii) at least one second compound effective for treating an inflammatory or immune disease, a cardiovascular disease, or neurodegenerative disorder; and (iii) a pharmaceutically-acceptable carrier or diluent.

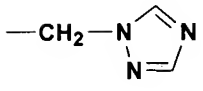
Claim 20. (Original) The pharmaceutical composition according to claim 19 in which the at least one second compound comprises a phosphodiesterase inhibitor.

Claim 21. (Currently Amended) A method of treating disease or disorder treatable by a melanocortin-receptor agonism ~~associated condition by agonizing melanocortin receptors, the method~~ comprising administering to a warm-blooded species in need of such treatment ~~a therapeutically~~ a melanocortin-receptor agonistic-effective amount of at least one compound according to claim 1.

Claim 22. (Currently Amended) The method of claim 21 in which the disease or disorder treatable by melanocortin-receptor ~~associated condition~~ agonism is an MC-1R or MC-4R associated condition.

Claim 23. (New) The compound as defined in Claim 1 wherein one of R_8 and R_9 is alkyl substituted with heteroaryl and the other is cycloalkyl.

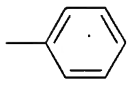
Claim 24. (New) The compound as defined in Claim 23 wherein one of R_8 and R_9 is



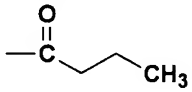
and the other is cyclohexyl.

Claim 25. (New) The compound as defined in Claim 1 wherein one of R_8 and R_9 is aryl and the other is $-C(=O)R_{13}$ where R_{13} is alkyl.

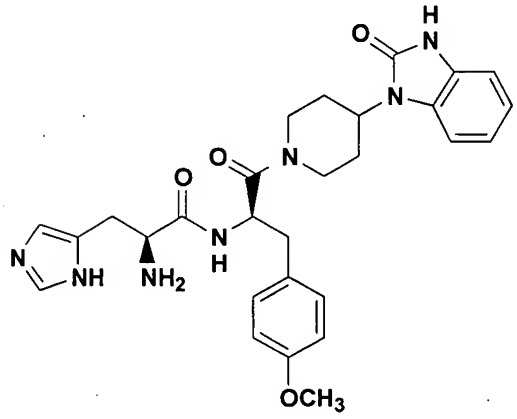
Claim 26. (New) The compound as defined in Claim 25 wherein one of R_8 and R_9 is



and the other is



Claim 27. (New) A compound having the structure



or